

Transitioning from FGDC to ArcGIS metadata, FGDC style for ArcGIS Online

Version 2.6

This document is intended to provide guidance for data and metadata providers to the State of New Jersey ArcGIS Online / Open Data site, and partners whose sites are linked. The directions assume that the data set in question already has FGDC CSDGM metadata. There is a separate document for writers who are starting from scratch.

https://njgin.state.nj.us/oit/gis/NJ_NJGINExplorer/docs/MD_Transitioning_FGDC_to_ArcGIS_AGO.pdf

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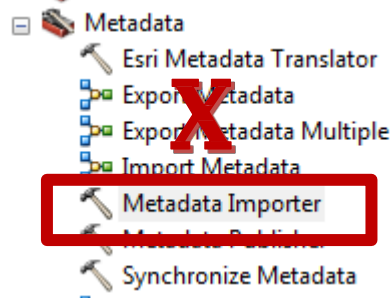
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Summary

- ❖ Set up tools: Configure ArcCatalog
- ❖ Prepare/back up existing metadata info: Archive xml
- ❖ Upgrade
- ❖ Fix content problems: re-order process steps, update changed info, other
- ❖ File clean-up
- ❖ Thumbnail, easy or custom
- ❖ File for AGOL
- ❖ Optional: Prepare, export, and check updated compliant FGDC CSDGM xml metadata file

Things to remember

- ❖ If NOT starting with existing FGDC CSDGM metadata, instead of this document, please refer to *ArcGIS Metadata for ArcGIS Online, FGDC Style, from Scratch*. There are several important differences in workflow. **Do not** just start editing an existing FGDC CSDGM metadata record with the ArcCatalog metadata editor. This is not a shortcut – it makes more work, and may cause the record to become un-editable or even unusable.
- ❖ Date formatting: for a date in a free text field, enter in this format:
2018-02-15.
- ❖ Change Publication Date for re-release of updated data.
- ❖ Need to transfer metadata with no changes? Use the ArcToolbox Metadata Importer tool (Conversion tools -> Metadata -> Metadata Importer). Do not use the Export or Import buttons on the Description tab, nor the Export Metadata model. When using the tool, the Source is the file with good metadata. The Target metadata will be replaced in full.



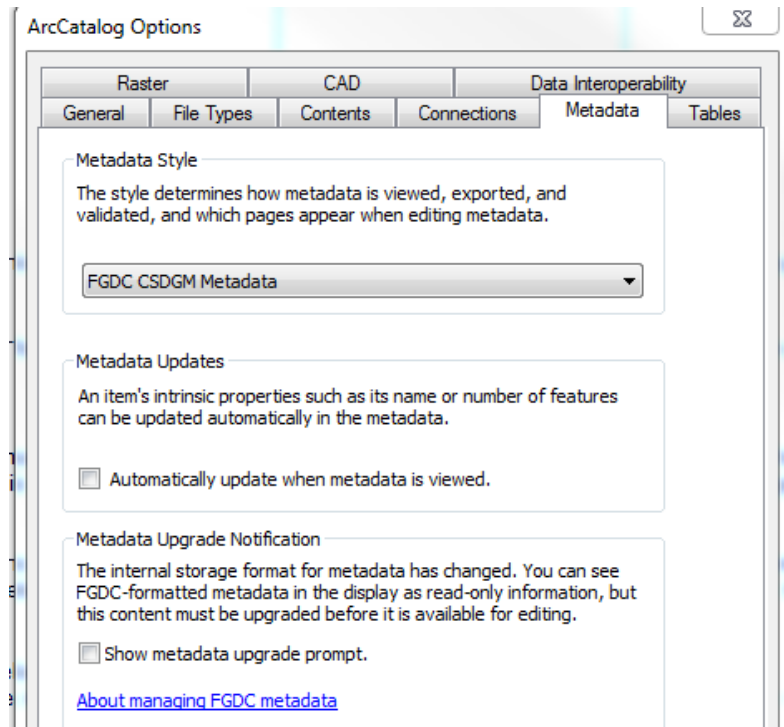
- ❖ For submissions of metadata to ArcGIS Online, a cleaned-up record is important. See Section G, *Clean-up of ArcGIS Metadata*.

Step by Step Instructions

A. Essential tools - set up in preparation

1. **These instructions are written for ArcGIS 10.3.1 for Desktop.** In previous versions the ArcGIS editor does not work as well. There are no major changes to metadata editing in ArcGIS 10.5.1
2. **Remember that whatever object is highlighted in the Catalog Tree** will be what you see in Contents and Preview. Its metadata will be visible in Description tab, and will be edited if you click the Edit button.

3. **Set up ArcCatalog properly** for FGDC style metadata. Customize menu -> Options -> Metadata tab. Set up as shown, including unchecking automatic updates, and prompts: (see below)



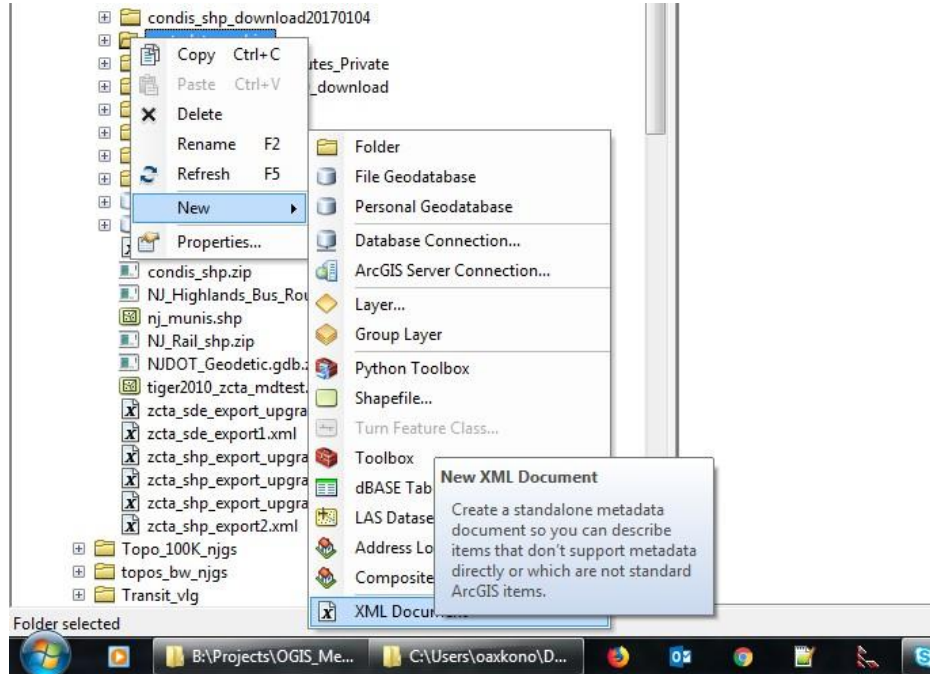
4. **Optional: Install Notepad++**, including the XML Tools plugin. This is free software under the GNU General Public License as published by the Free Software Foundation.
5. **Optional: Install XML Notepad**. This is a free download from Lovett Software. **Set it to save files WITHOUT initial Byte Order Mark.** (View -> Options -> Formatting Options -> No byte order mark on save = True)

The above two tools are useful for editing an xml file directly, outside of a structured metadata editor. Not all metadata writers need to do this.

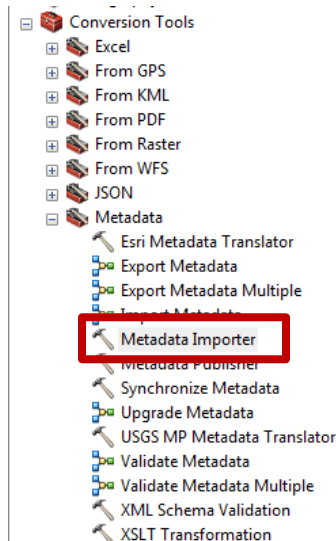
6. Obtain tools that help when editing FGDC metadata, such as the Metadata Quick Guide and perhaps the FGDC CSDGM Workbook.
7. **ArcGIS Desktop Help for using the new editor to produce FGDC metadata:** There are various useful help topics under Geodata > Data types > Metadata. The one you are most likely to need repeatedly is *Illustrated guide to complete FGDC metadata*, under Editing metadata > Metadata workflows. You might want to "Favorite" that one.

B. Metadata preparation steps

1. **Examine existing metadata in the ArcCatalog Description tab.** If ArcCatalog has been configured correctly as above, there will be some descriptive information at the top of the page (in ArcGIS format), and the full FGDC metadata at the bottom, in a grey font. You may have to expand the header *FGDC Metadata (read-only)*.
2. **Make an archive copy of the existing metadata.** Create a blank xml in an archive folder, using ArcCatalog context menu (rt-cl -> New -> XML Document).



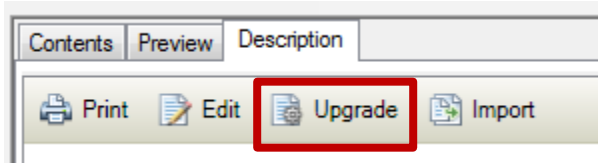
Use the Metadata Importer tool to copy the existing metadata info into this xml with NO changes. The source is the working feature class or shapefile. The target is the new blank xml. (See below)



3. **Note Process Step order and dates.** In order to prevent destructive scrambling of the order of the process steps, they must all have unique dates, or dates and times, in chronological order. Take a look at the existing metadata on the Description tab, scrolling all the way down to the bottom to the FGDC Metadata part of the stylesheet (be sure to expand it.) If the process steps don't have unique dates/times, make notes of which process step(s) need edits for what date and/or time. After the upgrade, edit the missing dates or times in the ArcGIS editor, and the ArcGIS editor will then properly re-order the process steps.

C. Perform the upgrade. This will draw information from the FGDC metadata and put it in ArcGIS format xml (different elements and organization.)

1. Highlight the correct object in the Catalog Tree
2. Click the *Upgrade* button on the Description tab if it is visible.

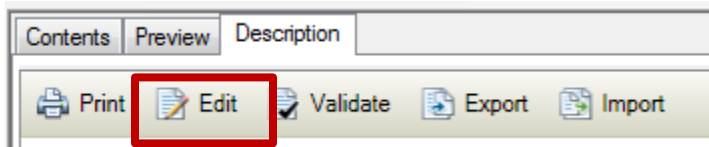


Same function is available as an *Upgrade Metadata* model in the Toolbox, which can be used if the button is not visible.

3. **Set Upgrade Type** to FGDC_TO_ARCGIS.
4. Will take about half a minute.
5. During the upgrade process, some information is synchronized with the data.
6. **WARNING; from this point on DO NOT use the old FGDC metadata editor on this record again.**

D. Examine the upgrade. Click on the Contents tab and then back on Description tab to force the Description to re-load. There now should be more information showing the top of the Description tab, including the correct Title. The Upgrade button should be missing, and some new buttons present. NOTE if you look at the Process Steps now, they will not be in order.

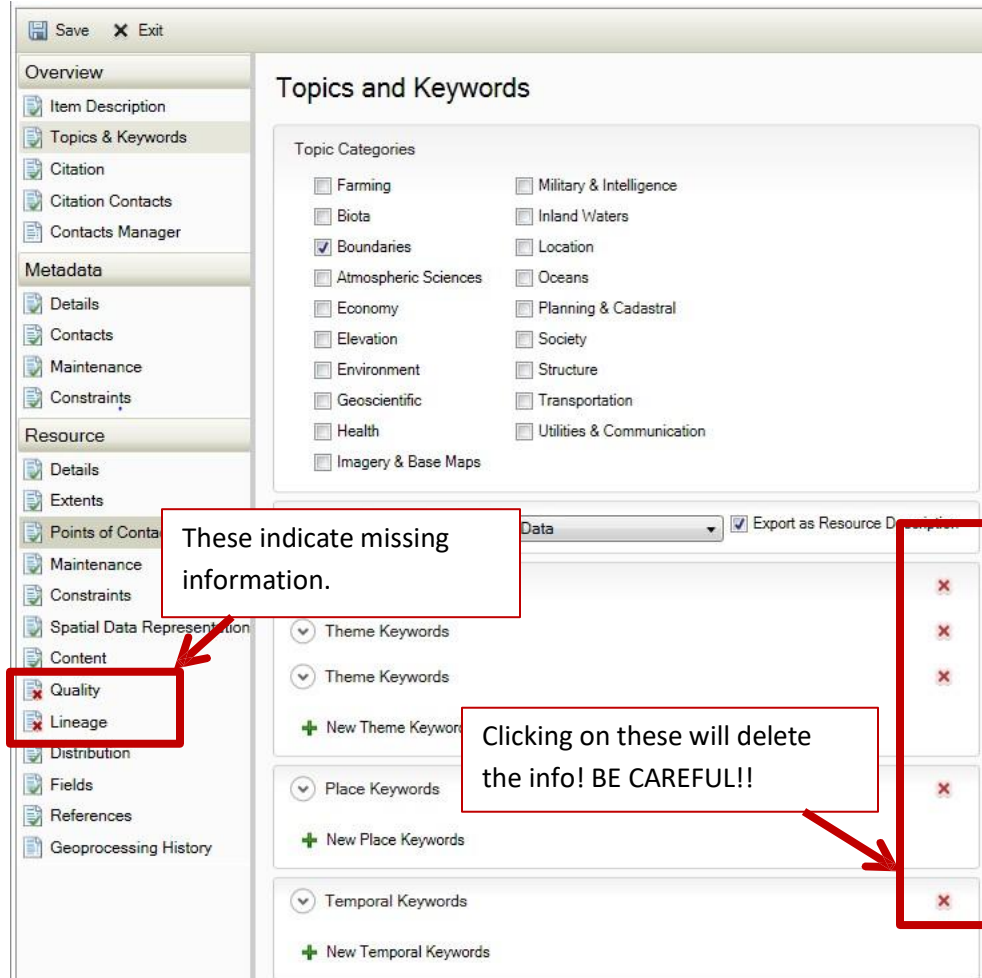
E. Fix the Process Step order. Open the metadata for editing by clicking the Edit button at the top of the Description tab:



Edit any dates and/or times as required (refer back to your notes and/or the old archived FGDC metadata to review the correct order.) Save (and close). Re-open editor, save-close again. The Process Steps should now be in order. (Don't forget to refresh the Description, as above.)

F. Editing in ArcCatalog. Now edit any outdated information in the metadata, and also find and fix anything that is missing or did not upgrade properly. Most of the manual entry elements required for cataloging are listed below. Summary lists of elements required for cataloging and for full documentation are published by NJGIN, and are in Appendices to this document. If starting with more-complete metadata, be sure to check all existing fields for needed updates. Also look for items marked with a red **x** in the section list on the left side of the tab. Not all of these need to be fixed completely, but they are a place to start. (See below)

IMPORTANT: Be careful which red x you click on!



To cancel bad edits, *Exit* without saving to revert to the way the metadata were the **last time they were saved**. For additional field guidance, hover the cursor over the field and look in the help bar at the bottom of the Description pane.


1. **Title:** This should be a succinct but informative entry that will give the reader a good clue to the contents of the data set. Do not leave it as just the filename of the data set (which is what ArcCatalog may capture automatically,) although you may want to include a well-known filename near the end of the Title.
2. **Abstract (editor Description):** A paragraph or two conveying the “what” of the data set. Should be intelligible to the non-specialist reader.

3. **Purpose (editor Summary):** The “why” of the data set, i.e. the business reason for its creation.
4. **Bounding Coordinates (Bounding Box):** If the metadata are associated with the relevant data, should be filled in automatically by ArcCatalog during upgrade. If not, must be filled in manually in Item Description section, using geographic coordinates in signed decimal degrees. Be sure to check the box for *Extent Contains the Resource*.
5. **Topic Categories:** pick one. Do NOT use *Boundaries* unless the data set is a administrative or political boundaries, such as municipal boundaries or voting districts. See code descriptions in Appendix V.
6. **Content Type:** Pick from the list and check the box for *Export as Resource Description*. This is required for proper function in old NJGIN2 catalog, optional but useful in ArcGIS Online.

Topics and Keywords

Topic Categories

<input type="checkbox"/> Farming	<input type="checkbox"/> Military & Intelligence
<input type="checkbox"/> Biota	<input type="checkbox"/> Inland Waters
<input type="checkbox"/> Boundaries	<input type="checkbox"/> Location
<input type="checkbox"/> Atmospheric Sciences	<input type="checkbox"/> Oceans
<input type="checkbox"/> Economy	<input type="checkbox"/> Planning & Cadastral
<input type="checkbox"/> Elevation	<input type="checkbox"/> Society
<input type="checkbox"/> Environment	<input type="checkbox"/> Structure
<input type="checkbox"/> Geoscientific	<input type="checkbox"/> Transportation
<input type="checkbox"/> Health	<input type="checkbox"/> Utilities & Communication
<input checked="" type="checkbox"/> Imagery & Base Maps	



Content Type: Offline Data ☒ Export as Resource Description

7. **Theme Keyword(s):** Add a Theme Keywords section, then enter subject words or phrases that a user might choose when searching for this data item. Separate them with newlines. If keywords are from a published vocabulary, add a Thesaurus Citation in the same section. Otherwise, skip it. If the pre-upgrade metadata had keywords sections, some cleanup may be needed.
8. **Place Keyword(s):** The most important / relevant one needs to be first in the list. For statewide data, should be “New Jersey”. For county data, the county name and state, e.g. “Sussex County, New Jersey”.
9. **Tags:** Copy all keywords into the Tags field (in Item Description sub-section)
10. **FGDC Geospatial Presentation Form:** Pick from list, and/or consolidate if in a separate section from *Presentation Form*.
11. **Publication date and edition:** Please be sure the publication date reflects the latest release of the data, not the original release. Publication date is the ONLY date that can be counted on to persist through crosswalks to other metadata formats. Please be sure to change this date every time metadata are updated for a discrete re-release. This becomes more and more important as the data world becomes more interconnected. It is optional to put any brief information about previous releases in edition, which is a free text field. Sample language: “Third edition; original publication date 2009-01-15.” More-involved histories can go in Supplemental Information or Process Steps. Use of Created and Revised dates is optional, they will persist when metadata are shared with ArcGIS products but will not translate into exported FGDC CSDGM standard metadata.
12. **Citation Contact Information for Originator:** fill in fully-described organization,

and person's name if applicable. This should be the organization and/or person who defined the requirements for the data set. There is no harm in completing all the contact information create a re-usable contact.

13. **Citation Contact Information for Publisher:** fill in City and State at least. There is no harm in completing all the contact information to create a re-usable contact.
14. **Metadata Date Stamp:** initially fills in automatically, but can be changed.
15. **Metadata Contact Information:** fill in a name, full organization, and full contact information either for the metadata author, or for someone who will continue to be able to answer questions about the metadata.
16. **(Resource) Credits:** Copy in Originator and Publisher, then add anyone else who should receive credit/thanks (partners, funding sources, etc.)
17. **Status/Progress of data set development:** under Resource Details, pick the appropriate choice.
18. **Time Period of Content date(s):** in the ArcGIS Editor, create a new Extent section, SEPARATE from the Extent section for bounding coordinates. To the new section, add **Temporal Period Extent** or **Temporal Instant Extent** and fill in date(s). If you can establish when the data matched the real world, Description of the Extent is Ground Condition. Otherwise, use Publication Date or a custom entry.
19. **Maintenance [and] Update Frequency:** pick the appropriate choice. Unless there is a process in place for formal change detection, editing, and publishing, "as needed" probably is not appropriate.
20. **Access Constraints, Use Constraints, Distribution Liability:** can be left out, but it is better to include them. Standardized language across an organization is appropriate in many cases, so these are good to put in a template. In the ArcGIS Editor, these are in the following locations:
 - a) Access Constraints Resource -> Constraints -> Legal Constraints -> Other Constraints
 - b) Use Constraints Resource -> Constraints -> General Constraints -> Use Limitation AND/OR Overview -> Item Description -> Use Limitation
 - c) Distribution Liability Resource -> Constraints -> Legal Constraints -> Use LimitationHelp with sample language as used by NJOIT - OGIS is available, see below.
21. **Security constraints** for data or metadata won't translate properly in most cases. The information can be omitted for public data, or use Classification *Unclassified* and change the classification system to *ArcGIS*. Optional: create a new section of Theme Keywords and enter keyword for Project Open Data distribution policy, one of the following as appropriate: public; restricted public; or non-public. These are intended to reflect various types of sensitivity, not just security classification.
22. **Data Quality:** If this section is used, the minimum required is one Process Step (filled out under Lineage in the editor,) as well as a Logical Consistency Report (called Conceptual Consistency in the ArcGIS Editor) and a Completeness Report. For each report, fill in the Report Type, and a Measure -> Description if missing. "Complete" metadata should also contain Attribute Accuracy Report and Horizontal Positional Accuracy Report. The upgrade process may have generated several incomplete reports that will need to be edited or deleted. After doing

this, the Quality section may still have a little red **x** showing errors. However, if exported the FGDC CSDGM metadata xml will pass validation.

23. **Distribution Information:** In AGOL and Open Data, the provider is displayed with the Item, from the Esri account information. Skip this section if the metadata won't be used elsewhere. However, if the metadata will be used elsewhere, for Distribution Information to travel with the data, it will need to be filled in. If help is needed, see ArcGIS Desktop Help topic *Illustrated guide to complete FGDC metadata*, and jump to the Distribution Information section, to see how to fill out the missing parts, and/or consult the complete element list in the Appendix. It is a bit confusing because the ArcGIS editor is formatted to allow editors to fill this in for FGDC AND ISO metadata export, and they require two different organization schemes. For FGDC, almost all the info needs to be filled out WITHIN the Distributor entry. However, URLs go in two places:

Distribution -> **Distributor** -> Digital Transfer Options -> Online Resource -> Linkage

Distribution -> Digital Transfer Options -> Online Resource -> Linkage.

Use the second one above for a direct download URL, if available and/or a general information URL (element is repeatable.) This one ends up in Section 1 - Identification Information of exported FGDC CSDGM metadata. If the metadata are on the old NJGIN2 catalog, the first entry also will be provided as a direct linkage attached to the metadata Title when it is returned from a search. If the ArcGIS metadata are uploaded to ArcGIS Online, an entry will be filled in automatically: however, in most cases this will not travel with the data set,

Use the first one above for all kinds of direct access. This one ends up in Section 6 - Distribution Information of exported FGDC CSDGM metadata. This element is used by other GIS data catalogs.

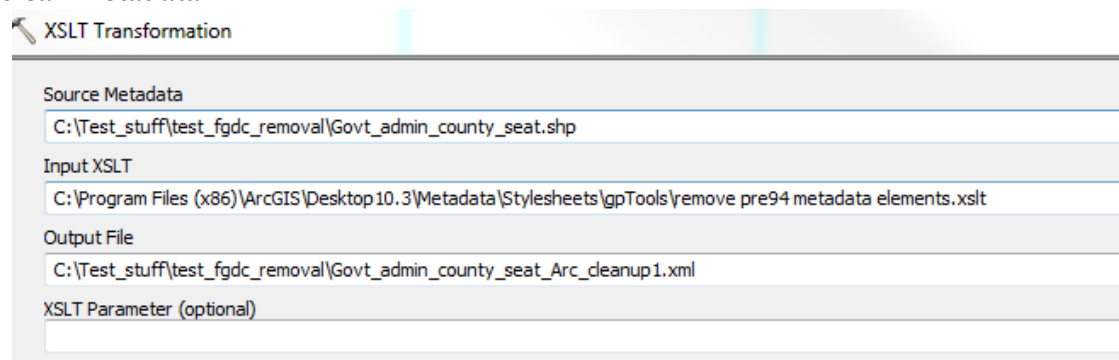
For downloadable data, the same URL will be in two places. If confused, call human help listed below.

24. **Entity and Attribute Information:** This is filled out in the *Fields* section. The upgrade may scramble the order. Fill out any missing info, and delete any irrelevant entries. See full metadata list below for additional help. It is not necessary to unscramble the order.
25. **Mandated creators, including NJ State vendors:** are required to provide more information than just the essential elements for cataloging. There are separate help documents to assist with creating fuller metadata.
- a) **A full list of elements** for compliant metadata is published by NJGIN in several formats.

- b) **Appendix III lists the full documentation checklist elements that require manual entry** in the ArcGIS editor. This is a shorter list because some of the required elements are filled in during metadata synchronization with the data.
- c) **Help with Fields (Entity and Attribute Information)** is available from *Metadata Attribute Domain Element details – FGDC CSDGM in ArcGIS Editor 10.3.1.*, which is published by NJGIN. If there already is a detailed data dictionary in tabular format, there are alternative ways of satisfying the requirements for the Fields section. Contact the human help listed below for more information.
- d) **Help with sample language for Constraints and Distribution Liability** is available from NJGIN.

G. Clean-up of ArcGIS metadata. At this point the upgraded and edited metadata record contains both FGDC and ArcGIS elements. For a “clean” ArcGIS record of minimal size, with only the current, updated information in it, it will need to be cleaned up, removing old, un-updated FGDC elements. For publication of data and metadata to ArcGIS Online, this is important.

1. **Locate the required xslt file** in the ArcCatalog install. On my Windows 7 PC, this file is located here: C:\Program Files (x86)\ArcGIS\Desktop10.3\Metadata\Stylesheets\gpTools\remove pre94 metadata elements.xslt. Add an ArcCatalog Tree connection to the enclosing folder for easy access.
2. **Start the XSLT Transformation Tool** (Conversion Tools -> Metadata) and fill in as appropriate. The Source Metadata is the metadata you have been editing. The Input XSLT is shown above. The output file will be a standalone xml of partially-clean metadata.



XSLT Transformation

Source Metadata
C:\Test_stuff\test_fgdc_removal\Govt_admin_county_seat.shp

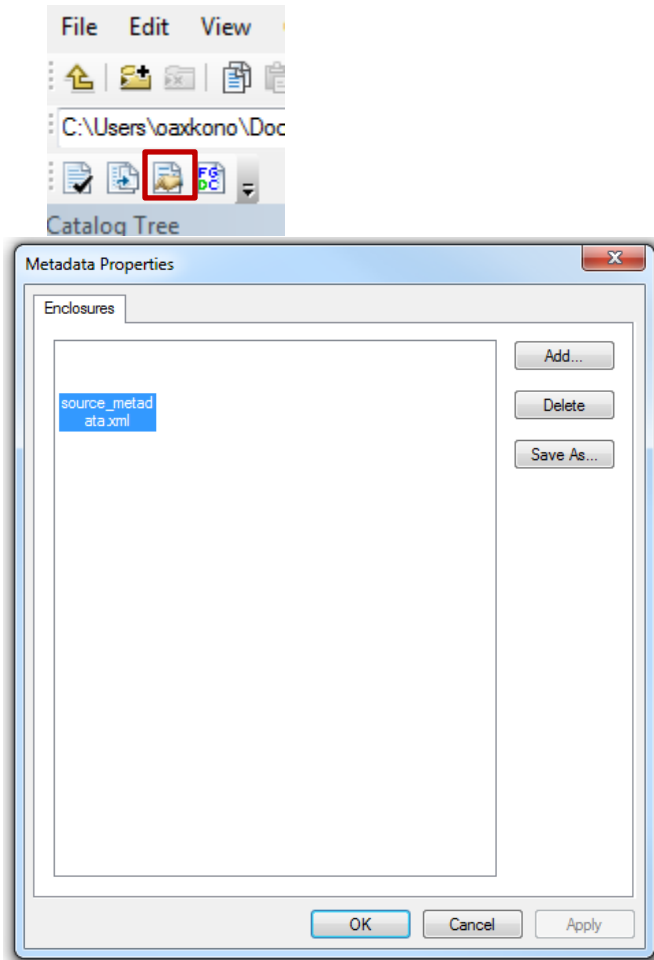
Input XSLT
C:\Program Files (x86)\ArcGIS\Desktop10.3\Metadata\Stylesheets\gpTools\remove pre94 metadata elements.xslt

Output File
C:\Test_stuff\test_fgdc_removal\Govt_admin_county_seat_Arc_cleanup1.xml

XSLT Parameter (optional)

3. The resulting output file will have no FGDC CSDGM elements in it except for the ones that are re-used by ArcGIS metadata. However, it will still have a binary enclosure of the pre-upgrade metadata (FGDC CSDGM if that is what you started with.)
4. **Delete FGDC enclosure.** When FGDC metadata are upgraded to ArcGIS metadata, the original FGDC content also is compressed and stored within the xml as a binary enclosure. This is distinct from the FGDC xml elements still in xml format, which were deleted above. Removing this old content will make the resulting file quite a bit smaller.

- a) Highlight the metadata file in the ArcCatalog tree.
- b) Click the Metadata Properties button



- c) Select the source_metadata.xml enclosure. Make sure there is an archived copy of the original metadata, or click *Save As*, and put the xml in an archive location. Then click *Delete* and then *Apply*. Click *OK* to dismiss the dialog.
5. Check the cleaned-up, stand-alone file in ArcCatalog to make sure all the desired content is there and the *FGDC Metadata* part of the Description stylesheet shows only Entity and Attribute Information.
6. **Transfer the cleaned-up metadata content** back to the data set by using the Metadata Importer tool.

H. Create thumbnail

1. **Automatic via ArcCatalog** (easy): select the data set in the Catalog Tree. Switch to the Preview tab in the Contents pane and click the thumbnail button on the

Geography toolbar.

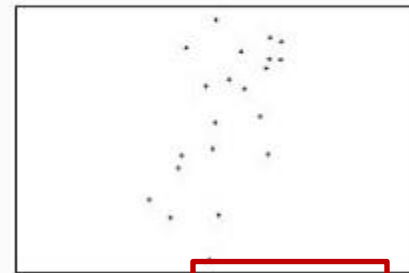


2. A branded, custom thumbnail is strongly recommended for vetted data to be registered in ArcGIS Online. Human help listed below can provide further information.
3. **Custom:** Create a customized view of the data in ArcMap, and a custom image.
 - a) Set the layout Data Frame Properties to Size width = 2.08in, height = 1.38in. This will yield a 200 x 133 pixel image at resolution of 96 dpi.
 - b) Add a base map or layer. Symbolize data and zoom to a pleasing scale. Check in layout view. Add a branding banner image if desired.
 - c) Choose File -> Export Map, with options as follows:
 - d) Save as type JPEG
 - e) Resolution 96 dpi
 - f) Clip output to graphics extent ON
 - g) Once the JPEG file has been created, switch to ArcCatalog, select the data set, and start the ArcGIS metadata editor. Import the image by using the *Update* button under the thumbnail or placeholder. If further info is needed, see ArcGIS Help instructions *Creating a thumbnail from the Description tab*.

Item Description

Title County Seat locations in New Jersey, Web Mercator (Govt_admin_county_seat_3857)

Thumbnail



Delete Update...

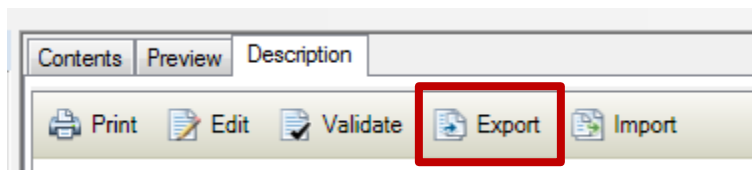
- I. **Preparing metadata for ArcGIS Online:** ArcGIS Online metadata upload capability accepts only ArcGIS metadata xml without any extraneous elements. If you have not cleaned out old FGDC CSDGM material, go back to **G**.
 1. **Incorporate a custom thumbnail, or create an automatic thumbnail** using ArcCatalog (instructions for both above.)
 2. **Consider adding keywords/tags:** any keywords put in keyword fields and copied into Tags in the metadata will be written into the AGOL Item Tags, the first time you load a metadata file. If you update existing metadata on AGOL, any additional keywords may have to be added to the Item Tags manually.
 3. **Consider copying Originator and Publisher into Credits:** This will enable them to show up in the AGOL Item front page.
 4. **Consider cleaning out “private” information:** several classes of information can be removed from the metadata record using the XSLT Transform tool, described in step G above. Automatically-collected geoprocessing information can be removed by using the tool with *remove geoprocessing history.xslt*; references to computing platform addresses can be removed by using the tool with *remove local storage info.xslt*. Note that each time the tool is run, the *Source*

Metadata is the previous metadata, and the *Output File* is a new metadata xml file of the processed output metadata. To propagate these changes to the data-attached metadata, import the final xml into association with the data, using the Metadata Importer tool (see Things to remember, above.)

5. **If the AGOL Item will not be created by uploading a shapefile, create a standalone ArcGIS xml:**
 - a) Invoke the XSLT Transform tool. Use *exact copy of.xslt* for the Input. The *Source* will be either the metadata on your data, or a more cleaned-up xml file produced above.
 - b) Name the output to make it recognizable as ArcGIS metadata for the correct data set (e.g. Govt_admin_county_seat_3857_Arc.xml)
6. **Sign into AGOL and upload the xml file.** If the Item is created by uploading a zipped shapefile with metadata, skip this step. On the AGOL Content item interface, a standalone xml file can be uploaded using the *Metadata* (-> Edit) button. When the editor interface comes up, click the *Open* or *Overwrite* button, which will allow browsing to the standalone file, and then upload the file. Then Save and Close. Then check the Item page to confirm changes

J. Producing FGDC CSDGM metadata (Optional - required for vendor deliveries to NJ State Agencies):

1. In ArcCatalog, highlight the data set with completed ArcGIS metadata, in the Catalog Tree.
2. Double check a few crucial items
 - a) Topic Category chosen
 - b) Content Type chosen correctly
 - c) All elements/fields in required list have been added or updated (see Appendix.)
 - d) Save if Editor is open.
3. Produce the FGDC CSDGM xml file by using the Export button on the Description tab.



(Another option is the toolbox Export Metadata MODEL)

- a) **Source Metadata** is the working data set.
 - b) **Translator is ARCGIS2FGDC.xml**. Will be filled in automatically if the metadata style is set up correctly and you use the button.
 - c) Direct the output file to a convenient location. Give the xml file a name with FGDC in it.
4. Check the FGDC CSDGM xml to make sure any updated content is in it. To do this, look at the FGDC CSDGM xml in ArcCatalog, Description tab, in the gray bottom section FGDC Metadata (read-only). The complete list in CSDGM order is available from NJGIN, at

https://njgin.state.nj.us/oit/gis/NJ_NJGINExplorer/docs/MD_Documentation_elements_FGDC_CSDGM.pdf.

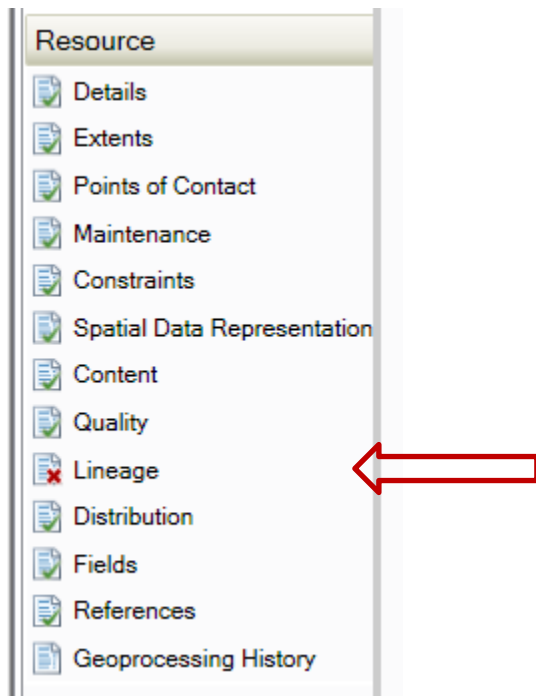
5. Fix missing or incorrect elements **in the ArcGIS metadata for the data set, not in the exported FGDC CSDGM format xml**. To find the right place in the editor to put in the info, see 8.d) below.
6. **When done, re-export FGDC CSDGM xml**.
7. Repeat steps 3 - 6 until the FGDC CSDGM xml is complete. Don't edit or move the completed FGDC CSDGM xml with the ArcGIS Metadata Editor. Viewing it on the Description tab is ok.
8. **Validate FGDC CSDGM xml with USGS MP validation service**. Steps c-e) are optional unless a complete, compliant record is required for your workflow.
 - a) In a web browser, open the Geospatial Metadata Validation Service at <https://geo-nsdi.er.usgs.gov/validation/>. This service is based on Metadata Parser by Peter Schweitzer of the USGS.
 - b) Browse for the FGDC CSDGM xml metadata file, check on the **Upgrade** and **Indent XML** options, and **Validate**.
 - c) Open the **error report**. If there are errors that should be fixed, note what the element names and numbers are and the line numbers.
 - d) Find out where to look in the ArcGIS editor for the corresponding fields. You may need to use some combination of the Checklist spreadsheet, the FGDC CSDGM Workbook, the ArcCatalog Illustrated Guide to complete FGDC metadata, and the FGDC CSDGM xml opened in Notepad++. Searching the latter by line number is useful if the error involves a repeating element and you need to figure out which instance is causing the problem. Dan or Edith will be happy to help if you get stuck.
 - e) Go back to ArcCatalog, highlight the working data set, and invoke the ArcCatalog metadata editor. **Work with the metadata in the data set**. The idea is to edit the source metadata on the data set, then re-export, etc. Repeat steps for editing, exporting, and validating, until you are satisfied with your product.
 - f) Run the final exported FGDC CSDGM xml through the USGS MP validation service. Save the output ZIP, and extract the output FGDC CSDGM xml. Use this xml for any use where standard compliance is important. It is formatted with an initial declaration line (<?xml version="1.0" encoding="UTF-8"?>) and without an initial Byte Order Mark (BOM). It also has attribute domain information re-formatted to be standard-compliant (ArcGIS formats these elements incorrectly.) **Move this file only with Windows**, not with ArcCatalog.

Appendix I: A few nifty features and quirks of the ArcGIS Editor

- ❖ **Contact Information** - The ArcGIS editor includes a Contacts Manager, which can save Contact Information packages to a file on the PC or server where ArcGIS is installed. The contacts can then be re-used. When a metadata record is open in the Editor, the Contacts Manager (section) lists all the Contacts saved in the Manager file (first,) and then all the additional ones in the current metadata record. You can save new ones or un-save old ones in this view. Un-checking will not delete the entry from the current metadata, just from the saved ones. When you load a saved contact somewhere in the ArcGIS editor, don't forget to change the role for the new instance of use. If you are comfortable editing xml files in an xml editor, you can edit directly the file where the saved contacts are stored: at ArcGIS 10.3.1, this file is located here:
`<user documents>/ArcGIS/Descriptions/contacts.xml` .
- ❖ **Synchronization** - we are done struggling with manually entering Spatial Reference information. As long as there is a proper spatial reference on the data, ArcGIS will read it into the metadata. Quite a bit of other information also gets read in this way, depending on how the synchronization is invoked. The full list of what can get synchronized for a feature class is below:
 - Title - gets file or feature class name
 - Bounding Coordinates in decimal degrees
 - Content Type as Downloadable Data
 - Presentation Format e.g. digital map
 - Dataset language as English (United States)
 - Spatial representation as vector (if it is polygons)
 - Processing environment (Windows build version etc)
 - ArcGIS Item properties, including file location (these are non-editable, but don't get exported in the FGDC xml)
 - Extents, both geographic coordinates and native coordinate system units
 - Spatial Reference, both EPSG reference and full instantiated elements
 - Spatial Data Properties (roughly equivalent to Spatial Data Organization)
 - Field names, aliases, and types
 - Metadata date stamps and scope
- ❖ **Synchronization options** - some operations perform a set type of synchronization. If you synchronize manually, you can control what gets synchronized to some extent:
 - ALWAYS - Does not change an edited Title, but will fill it in if blank.
 - ACCESSED - Elements will be synchronized whenever an ArcGIS client accesses the data, even if ArcCatalog is set to not do this. The sync will reset some date stamps, for example, every time someone examines the data. Once ACCESSED is chosen, it is set for the data object and is difficult to change.
 - CREATED - If metadata are present but empty, does not fill elements.
 - NOT_CREATED - Will fill above elements if empty, and update some even if filled. Does not over-write edited Title or a manually-entered bounding box.
 - OVERWRITE - Overwrites all of the above, even if they have been edited by a human already (Existing readable Title gets destroyed.) However, existing attribute definitions are not destroyed.
 - SELECTIVE - Overwrites the above with info from current data, except for Title and Content Type.

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- ❖ **Date formats:** In the ArcGIS editor, the date convention for ISO metadata is followed. Dates are YYYY-MM-DD. Times are hh:mm:ss . Most date fields are restricted in the editor to using the calendar date picker. If you do not know the month or day, you will have to establish a convention (e.g. use 2002-01-01 or 2002-12-31 if all you know is the year). When putting a date and/or time in a free text field, it makes sense to format it properly. When exporting to FGDC CSDGM xml, the contents of date/time fields will be translated to FGDC CSDGM format (YYYYMMDD) and stored that way in the output xml. Contents of free text fields will remain as entered. The ArcGIS stylesheets display almost all dates in the ISO format if the date has been properly-formatted in an FGDC xml date field.
- ❖ **Error flags** (little red **x** in editor section list): A few of these may persist, even after completion of all the information necessary to produce FGDC CSDGM compliant metadata. The Quality and Lineage sections of the editor are the most frequent culprits. If you are pretty sure the information is complete but want to check, export an FGDC-CSDGM xml and run it through the MP validation service to identify any missing information.



Appendix II: Required Cataloging Elements for NJGIN3

List below is in ArcCatalog editor order. These are the minimum elements that will work for cataloging. Fields marked # are filled during ArcCatalog synchronization or automatically by the editor, but can be changed. Fields marked * are commonly the same for many records and are candidates for template.

Warning: the following list does not include all the fields that may have outdated information in them, if metadata were upgraded from an existing FGDC CSDGM record.

❖ Overview section

Item Description sub-section

- Title
- Tags (come back to this after keywords and copy all of them in)
- Summary (Purpose)
- Description (Abstract)
- Credits (include Originator, Publisher, anyone else to thank)
- Use Limitation (Use Constraints) *
- Bounding Box (4 coordinates) #

Topics & Keywords sub-section

- Topic Category (check box)
- Content Type
- Theme Keyword
 - Theme Keywords (separate with line break)
 - Theme Keyword Thesaurus (only if above keywords are from a published vocabulary)
- Place Keyword(s)

(Resource) Citation sub-section

- Title (same as above, edit only if necessary)
- FGDC Geospatial Presentation Form
- Dates -> Published (please be sure to change for each discrete data release)

(Resource) Citation Contacts sub-section

- Citation Contact (name and/or organization) and Role = Originator *
- Citation Contact (name and/or organization, plus at least City and State), and Role = Publisher *

❖ Metadata section

(Metadata) Details sub-section

- Date Stamp #

(Metadata) Contacts sub-section

- Metadata Contact (name and/or organization) plus full contact information including email, and Role = Point of Contact *

[more]

❖ **Resource section**

(Resource) Details sub-section

- Status (Progress)

(Resource) Extents sub-section, **Add a new Extent sub-section**

- Temporal Instant Extent Date or Temporal Period Extent Dates (Time Period of Content Date(s))
- Temporal ... Extent Description: Ground Condition, Publication Date, or free text (Currentness Reference)

(Resource) Maintenance sub-section

- Update Frequency (Maintenance and Update Frequency)

(Resource) Constraints sub-section

- Legal Constraints -> Use Limitation (Distribution Liability) *
- Legal Constraints -> Other Constraints (Access Constraints); leave out if none. *

(Resource) Distribution sub-section -> Digital Transfer Options -> Online Resource

- Linkage (Online Linkage) Not required for ArcGIS Online access points. Required for other download and/or service points.

Appendix III: Required Full Metadata Elements, Editor field list

This list includes all the fields, in Editor order, that must be filled in or edited manually in the ArcCatalog Metadata Editor to produce full metadata per NJDEP/NJGIN required list.

Warning: the following list does **not** include all the fields that may have outdated information in them, if metadata were upgraded from an existing FGDC CSDGM record. It also does not include fields that normally are filled in automatically by ArcCatalog synchronization with the data, and do not need to be changed.

❖ Overview section

Item Description sub-section

- Title
- Tags (come back to this after keywords and copy all of them in)
- Summary (Purpose)
- Description (Abstract)
- Credits (include Originator, Publisher, anyone else to thank)
- Use Limitation (Use Constraints)

Topics & Keywords sub-section

- Topic Category (check box)
- Content Type
- Theme Keyword
 - Theme Keyword(s) separate with line break
 - Theme Keyword Thesaurus (only if above keywords are from a published vocabulary)
- Place Keyword(s)

(Resource) Citation sub-section

- Title (same as above, edit only if necessary)
- FGDC Geospatial Presentation Form
- Dates -> Published (please be sure to change for each discrete data release)

(Resource) Citation Contacts sub-section

- Citation Contact (name and/or organization) and Role = Originator
- Citation Contact (name and/or organization, plus at least City and State), and Role = Publisher

❖ Metadata section

(Metadata) Contacts sub-section

- Metadata Contact (name and/or organization) plus full contact information including email, and Role = Point of Contact

❖ Resource section

(Resource) Details sub-section

- Status
- Supplemental Information

(Resource) Extents sub-section

- Temporal Instant Extent or Temporal Period Extent, including date or dates and Description. The latter may be Ground Condition, Publication Date, or free text. This information must be in a separate Extent entry, not in the same one as the Bounding Box Extent.

(Resource) Maintenance sub-section

- Update Frequency

(Resource) Constraints sub-section

- Legal Constraints -> Use Limitation (Distribution Liability)
- Legal Constraints -> Other Constraints (Access Constraints); leave out if none.

(Data) Quality sub-section

- Report Type -> Conceptual Consistency AND Measure -> Description [Logical Consistency Report]
- Report Type -> Completeness Omission AND Measure -> Description [Completeness Report]
- Report Type -> Quantitative Attribute Accuracy AND Measure -> Description [Attribute Accuracy Report]
- Report Type -> Absolute External Positional Accuracy AND Dimension -> horizontal AND Measure -> Description [Horizontal Positional Accuracy Report]
- A second set of Absolute External Positional Accuracy report elements if Vertical Accuracy is pertinent.

(Resource) Lineage sub-section

- If published or archived source data or documents were used, for each one, add a Source:
 - Source Description
 - Scale Denominator (only for paper maps, or data of known nominal scale)
 - Source Citation Title
 - Alternate Title [Source Citation Abbreviation] e.g. file name
 - FGDC Geospatial Data Presentation Form
 - Date Published for the Source
 - Edition (only if referenced by source documentation)
 - Source Citation Contact name and/or organization and Role = Originator
 - Source Citation Contact name and/or organization, City, State, and Role = Publisher
 - Source Temporal Instant Extent or Temporal Period Extent, including date or dates and Description.
- If detailed processing information is available, for each process step, add a Process Step:
 - Process Description
 - Process Step Date (and time if relevant)

(Resource) Distribution sub-section

Distributor sub-sub-section (Be careful to choose this correctly - it is the **second one of three**.)

- Distributor Contact organization and/or name, Role = Distributor, and full contact information
- Ordering Process Fees
- Available Date or Date Period
- Ordering Instructions
- Distribution Format -> Format Name
- Distribution Format -> Format Version
- Digital Transfer Options -> Online Resource -> Linkage (direct access URL for download or service consumption)

Digital Transfer Options sub-sub-section (Be careful to choose this correctly - it is the **third one of three**.)

- Online Resource -> Linkage Repeatable element. First one should be a direct access URL if there is one. Add repeating elements for informational Web page, organization main Web page, etc.

(Resource) Fields sub-section - Entity and Attribute Information

- Label (change the synchronized default to something more descriptive of the Entity)
 - Entity Type -> Definition
 - Entity Type -> Definition Source
 - For each field (Attribute):
 - Label
 - Definition
 - Definition Source
 - ONE of
 - Range Domain -> Minimum AND -> Maximum
 - Codeset Domain -> Name AND -> Source
 - Unrepresentable Domain
- OR
- One or more Enumerated Domain, including for each

-> Value, ->Definition, ->Definition Source



Appendix V: Pick lists for NJGIN

- A. ISO 19115 Topic Category codes**¹ – For all metadata records, include one of the following ISO Topic Category codes (text), which expresses the Primary Theme of the data set, map, service, or application. In the ArcCatalog Editor, this entry is a check box; the keyword and the Thesaurus entries are made automatically by the editor and exporter. Numeric (three digit numbers as text) codes are provided for reference only.

Theme Keyword Thesaurus: ISO 19115 Topic Category Theme

Keywords:

- biota 002 for naturally-occurring flora and fauna, such as wildlife, biological sciences, ecology, wilderness, sea life, wetlands, habitats
- boundaries 003 for administrative and political boundaries, i.e. legal land descriptions;
- climatologyMeteorologyAtmosphere 004 for atmospheric processes and phenomena, such as cloud cover, weather, atmospheric conditions, climate change, precipitation
- economy 005 for economic activities or employment, such as labor, revenue, commerce, industry, tourism, ecotourism, forestry, fisheries, commercial or subsistence hunting, exploration and exploitation of minerals, oil, gas
- elevation 006 for height above or below sea level, such as altitude, bathymetry, digital elevation models, slope, and products derived from the preceding
- environment 007 for environmental resources, protection, and conservation, such as pollution, waste storage and treatment, environmental impact assessment, environmental risk, and nature reserves
- farming 001 for agriculture and farming, including the rearing of animals or cultivation of plants. For example, irrigation, aquaculture, herding, pests and diseases affecting crops and livestock
- geoscientificInformation 008 for geological, geophysical, and other earth science information, such as minerals, rock structure, rock composition, rock origin, earthquakes, volcanic activity, landslides, gravity, soils, permafrost, hydrogeology, erosion
- health 009 for human health and disease, health services, human ecology, and safety, such as human disease, human illness, factors affecting health, hygiene, mental and physical health, substance abuse

¹ Derived from *ISO Draft International Standard: Geographic information -- Metadata (ISO/DIS 19115), 2001, Section B.5.27 MD_TopicCategoryCode<<CodeList>>* (pp. 85-86); *Creating and Using Metadata Services, 2002, ESRI, Chapter 4 – Publishing metadata in ArcCatalog*; and *NOAA EDM ISO 19115 and 19115-2 CodeList Dictionaries - MD_TopicCategoryCode* at https://geo-ide.noaa.gov/wiki/index.php?title=ISO_19115_and_19115-2_CodeList_Dictionaries#MD_TopicCategoryCode. Numeric domain codes are from https://geo-ide.noaa.gov/wiki/index.php?title=ISO_Topic_Categories.

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- imageryBaseMapsEarthCover 010 for base maps, such as land cover, topographic maps, classified and unclassified images.
- intelligenceMilitary 011 for military bases, structures, and activities, such as barracks, training grounds, military transportation, military information collection
- inlandWaters 012 for inland water features and drainage systems, such as rivers, glaciers, salt lakes, water use plans, dams, currents, floods, water quality, hydrographic charts
- location 013 for positional information and services, such as addresses, geodetic networks, postal zones and services, control points, place names
- oceans 014 for features and characteristics of salt water bodies excluding inland waters, such as tides, tidal waves, coastal information, reefs
- planningCadastre 015 for land use, such as zoning maps, cadastral surveys, land ownership
- society 016 for characteristics of societies and cultures, such as natural settlements, anthropology, archaeology, education, traditional beliefs, manners and customs, demographic data, crime and justice, recreational areas and activities, social impact assessments, census information
- structure 017 for man-made construction, such as buildings, museums, churches, factories, housing, monuments, and towers
- transportation 018 for transportation networks, the means and aids for conveying people and goods, such as roads, airports, airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, railways
- utilitiesCommunication 019 for energy, water, and waste systems, and communications infrastructure and services, such as hydroelectricity, geothermal, solar, and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio, and communication networks.
- extraterrestrial for region more than 100 km above the surface of the Earth
- disaster for information related to disasters. Examples: site of the disaster, evacuation zone, disaster-prevention facility, disaster relief activities.

B. Content Type codes If metadata will be used in ArcIMS metadata server, use *EXACTLY ONE* of the following entries, *exactly* as shown, and check on Export to Resource Description:

- Live Data and Maps
- Downloadable Data
- Offline Data
- Static Map Images
- Other Documents
- Applications
- Geographic Services
- Clearinghouses
- Geographic Activities

C. NJ Framework data layers keywords Use one of these only if the subject applies, your organization is the authoritative source, and the data originate with your organization (not copies of data from elsewhere). Use with Keyword Thesaurus name *NJGIN*

- **njfw_geocontrol** Geodetic control
- **njfw_orthophoto** Geo-referenced images of the Earth's surface
- **njfw_boundaries** Boundaries of federal, state, local, tribal governments as reported/certified to the US Census Bureau
- **njfw_cadastral** Geographic extent of right, title and interest in real property (tax parcels, zoning, easements, etc.)
- **njfw_hydro** Surface water features
- **njfw_elevation** Geo-referenced digital representations of vertical position above or below a datum surface
- **njfw_transport** Geographic locations, interconnectedness, and characteristics of the transportation system

[MORE]

- **njfw_critical** Locations of the following:
 - Emergency Operations Centers
 - Police Stations
 - Fire Stations
 - Emergency Medical Services Stations
 - Coverage Areas for the above
 - Hospitals
 - Schools
 - Colleges and Universities
 - Day Care Facilities
 - Government Buildings
 - Power Generating Plants
 - Power Substations
 - Armories
 - Military Sites
 - Communication Towers
 - Telecommunication Sites
 - Utility Transmission Lines
 - Sports Arenas / Stadiums
 - TCPA Sites
 - SARA Sites
 - Ingestion Zones
 - Prisons
 - Evacuation Routes
 - Drinking Water Intakes
 - Sewage Pumps
- **njfw_lulc** Land use and land cover conditions

D. Tags for Open Data (enter in Theme Keywords)

- **public** data are available or could be made available to the public
- **restricted public** available under certain use restrictions
- **non-public** data not available to the public



Questions may be directed to:

Edith Konopka Edith.Konopka@tech.nj.gov 609-777-3774

NJ Office of Information Technology, Office of Geographic Information Systems

OR

Daniel Oliva Daniel.Oliva@dep.nj.gov 609-777-4324

NJ Department of Environmental Protection, Office of Information Resource Management, Bureau of GIS

Change History

Version 2.6 released 22 October 2018 - Edits to Element lists, use hint for Metadata Importer tool, other minor changes.

Version 2.4 release 20 August 2018 - Removed help information for NJGIN2. Corrected some URLs. Additional editorial changes.

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Version 2.2 released 15 May 2018 - Added use of XSLT Transformation tool; edits to Appendix information.

Version 2.0 released 16 April 2018 - Extensive re-write from original *Transitioning...* document.

